VSOP AO3 PROPOSAL COVER SHEETS

DEADLINE : 1 October, 1999
SEND TO : VSOG, ISAS, 3-1-1 Yoshinodai, Sagamihara, Kanagawa 229-8510, JAPAN

(1) Date prepared : 28 September, 1999

(2) Proposal title : Brightness Temperature Measurements of 8 Strong Millimeter Radio Sources

(3)	INVESTIGATORS	INSTITUTION
P.I.	Zhi-Qiang Shen	NAOJ, Japan
co-I.	Makoto Inoue	NAOJ, Japan
co-I.	Seiji Kameno	NAOJ, Japan
co-I.	Shinji Horiuchi	NAOJ, Japan
co-I.		
co-I.		
co-I.		
co-I.		
co-I.		

(4) Principal Investigator (or contact person) details...

Name : Zhi-Qiang Shen
E-mail : zshen@hotaka.mtk.nao.ac.jp
Fax : +81-422-34-3869
Phone : +81-422-34-3605

Address : VSOP Office
: NAOJ
: 2-21-1 Osawa
: Mitaka, Tokyo 181-8588
: JAPAN

(5) Proposal Abstract :

We propose to observe 8 radio sources selected from the 3 millimeter VLBI survey sample with HALCA simultaneously at both 1.6 and 5.0 GHz. The aim is to make accurate measurements of the brightness temperatures in their cores. These measurements, complemented by the available VSOP results of the remaining 71 sources in the sample, will enable us to investigate the distribution of brightness temperature obtained from space VLBI. When compared to ground-VLBI measurements of this same sample but made at different wavelengths (e.g., 15, 22 and 86 GHz), this will help us to check theoretical limits on the maximum brightness temperature (such as inverse Compton scattering or equipartition hypothesis). A good addition to the proposed VSOP observations would be the study of individual source structure. For example, this would be the first VLBI image for gamma-ray-loud quasar J0957+5523. We expect to have four sources done during the AO3 period with the remaining four best observed in later 2000.

(6) Proposal Category (indicate all that apply):
Object type:
☑ AGN, ☐ Maser, ☐ Stellar, ☐ Pulsar, ☐ Other :
Observation type:
☑ Continuum, ☐ Spectral Line, ☐ Polarization, ☐ Time-critical, ☐ Other :

(7) Number of proposed experiments

An 'experiment' is one or more observations of one source at a fixed HALCA set-up. A request to observe the same source at 1.6 GHz and separately at 5 GHz requires two columns to be filled in in item (8) below. A request to observe the same source with HALCA simultaneously observing at 1.6 GHz and 5 GHz requires one column to be filled in. Multi-epoch observations of the same source at the same frequency – a 'monitoring experiment' – requires only one column to be filled in. Suggested observing dates, especially for time-critical and monitoring experiments, should be specified in item (11).

The number of experiments in this proposal is: 8

(8) Details of proposed experiments

	Experiment 1	Experiment 2	Experiment 3	Experiment 4
Source name (J*hhmm*±*ddmm*)	J0050-0929	J0410+7656	J0521+1638	J0902-1415
Alternative name	OB -080	4C 76.03	3C 138	OJ -199
RA(J2000) (hh mm ss.ssss)	00 50 41.32	04 10 45.03	05 21 09.89	09 02 16.83
Dec(J2000) (dd mm ss.ssss)	-09 29 05.2	+76 56 46.8	+16 38 22.1	-14 15 30.9
Observing frequency band (GHz)	1.6/5	1.6/5	1.6/5	1.6/5
Continuum observations:				
Standard VSOP freq. channels?	☑	☑	☑	☑
Channel A range (MHz)	16	16	16	16
Channel B range (MHz)	16	16	16	16
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	2.0	2.8	4.0	2.3
Correlated flux (mJy)	712	150	150	450
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☐	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☑	☑	☑
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☐	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)				

	Experiment 5	Experiment 6	Experiment 7	Experiment 8
Source name (J*hhmm*±*ddmm*)	J0957+5523	J2131-1207	J2203+3145	J2346+0930
Alternative name	4C 55.17	OX -148	4C 31.63	4C 09.74
RA(J2000) (hh mm ss.ssss)	09 57 38.18	21 31 35.26	22 03 14.98	23 46 36.84
Dec(J2000) (dd mm ss.ssss)	+55 23 57.7	-12 07 04.8	+31 45 38.3	+09 30 45.5
Observing frequency band (GHz)	1.6/5	1.6/5	1.6/5	1.6/5
Continuum observations:				
Standard VSOP freq. channels?	☑	☑	☑	☑
Channel A range (MHz)	16	16	16	16
Channel B range (MHz)	16	16	16	16
Spectral line observations:				
Ch.A spectral line rest freq. (MHz)				
Ch.A LSR velocity (km/s)				
Ch.B spectral line rest freq. (MHz)				
Ch.B LSR velocity (km/s)				
FWHM of field of view required (mas)				
Min. spectral channels per IF channel				
Correlator averaging time (sec)				
No. of correlating passes (if >1)				
Total flux density (Jy)	2.3	2.9	3.1	1.4
Correlated flux (mJy)	*	600	880	600
Ground Radio Telescopes:				
Suggested array given at Item (11)?	☐	☐	☐	☐
GRT observing mode:				
128Mbps LCP (standard)	☑	☑	☑	☑
128Mbps LCP/RCP	☐	☐	☐	☐
256Mbps LCP/RCP	☐	☐	☐	☐
Preferred correlator:				
No preference	☐	☐	☐	☐
Mitaka	☐	☐	☐	☐
Penticton	☐	☐	☐	☐
Socorro	☐	☐	☐	☐
Monitoring programs:				
Number of observations				
Mean interval (days)				
Related VSOP proposal code(s)				

(9) VSOP spacecraft observing mode (see Section 3 and Table 5 of the VSOP Proposer's Guide):

- [x] 2 channel x 16 MHz, 2-bit (Standard mode),
- [ ] Other:

Phase calibration tones:

- [x] On (Standard continuum mode),
- [ ] Off (Standard spectral line mode)

(Include justification of any non-standard choice at (11) below)

(10) Assistance with preparation of ground telescope schedule files:

☐ VSOG assistance requested, ☑ Consultation desired, ☐ No assistance required

(11) Additional notes to the scheduler :

* J0957+5523 is an EGRET-detected compact source without correlated flux density available.

Four sources (J0521+1638, J0902-1415, J0957+5523 and J2131-1207) could be scheduled during the AO3 period. The remaining four would be best observed in later 2000.

(12) Attach a scientific and technical justification, not in excess of 2 pages of text and 2 pages of figures. Refer to the VSOP Announcement of Opportunity for detailed instructions. Preprints and reprints will not be forwarded to the Scientific Review Committee.

EITHER e-mail the completed LaTeX file to submit@vsop.isas.ac.jp and send two paper copies of the complete proposal to:

VSOP Observing Proposals
VSOP Science Operations Group
Institute of Space and Astronautical Science
3-1-1 Yoshinodai, Sagamihara
Kanagawa 229-8510 JAPAN

OR e-mail the completed LaTeX Cover Sheets file and, in a separate e-mail, the postscript file of the scientific and technical justification, to submit@vsop.isas.ac.jp

Information from the Cover Sheets of scheduled proposals will be made available from the VSOP WWW site.

Proposals must be received at ISAS by 1 October 1999